

CLAIMS

I claim:

1. A method of binding a plurality of sheets into a bound sheet stack, comprising:
- providing a first sheet and a second sheet, at least one of the sheets having a protective coating applied to a least a portion thereof;
- overlaying the first and second sheets so that at least a portion of the protective coating on the at least one sheet contacts the other sheet; and
- applying a binding energy to a binding region defined on the first and second sheets to thereby bind the sheets into a sheet stack, the binding region comprising a selected area of the protective coating on the at least one sheet, the selected area being in contact with the other sheet.
2. The method of claim 1, and wherein the binding energy comprises at least one of heat, pressure, ultrasonic energy, or electromagnetic energy.
3. The method of claim 1, and wherein the binding energy comprises a combination of heat and pressure.
4. The method of claim 1, and wherein the binding energy is selected to cause the protective coating on the at least one sheet to substantially fuse to the other sheet in binding region.
5. The method of claim 1, and wherein the binding energy is selected to cause the protective coating on the at least one sheet to partially fuse to the other sheet in binding region.

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1 6. The method of claim 1, and further comprising:
2 providing a third sheet which has a protective coating applied to at least a portion
3 thereof;
4 laying the third sheet onto the sheet stack so that so that at least a portion of the
5 protective coating on the third sheet contacts one of the first or the second sheet; and
6 applying the binding energy to the binding region to thereby bind the third sheet
7 to the sheet stack.
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9 7. The method of claim 1, and wherein the first and second sheets are each defined
10 by a first edge, and when the sheets are overlaid, the first edges of the sheets
11 substantially coincide, and further wherein the binding region extends inwardly from the
12 first edge of the sheets.
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14 8. The method of claim 1, and wherein:
15 the sheets are each further defined by a first corner;
16 when the sheets are overlaid, the respective first corners substantially coincide;
17 and
18 the binding region is located at the first corner of the sheets.
19

20 9. The method of claim 1, and further comprising, prior to applying the binding
21 energy, folding the first sheet to thereby create a first sheet folded edge, and folding the
22 second sheet to thereby create a second sheet folded edge, and wherein the binding
23 region extends along the folded edges of the sheets.
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10. A method of producing a bound document, comprising:
 - providing a first sheet of media;
 - providing a second sheet of media;
 - generating an image on the second sheet of media;
 - applying a protective coating to the second sheet of media;
 - laying the second sheet onto the first sheet so at least a portion of the protective coating on the second sheet contacts the first sheet; and
 - applying a binding energy to a preselected binding region of the first and second sheets to thereby bind the sheets into a sheet stack.
11. The method of claim 10, and wherein the binding energy is applied in the form of at least one of heat, pressure or ultrasonic energy.
12. The method of claim 10, and wherein the first and second sheets of media are each defined by a respective first edge, and when the second sheet is laid onto the first sheet, the respective first edges of the sheets substantially coincide.
13. The method of claim 12, and further comprising:
 - providing a third sheet of media which is defined by a first edge;
 - generating an image on the third sheet of media;
 - applying a protective coating to the third first sheet of media;
 - laying the third sheet onto the second sheet so at least a portion of the protective coating on the third sheet contacts the second sheet and so that the respective first edges of the sheets substantially coincide; and
 - applying the binding energy to the preselected binding area to thereby bind the third sheet into the sheet stack.

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1 14. The method of claim 13, and wherein the binding energy is first applied to the first
2 and second sheets to form a sheet sub-stack, and the binding energy is then applied to
3 the third sheet and the sheet sub-stack to form the sheet stack.

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5 15. The method of claim 13, and wherein the binding energy is applied to the first, the
6 second and the third sheets simultaneously to form the sheet stack.

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8 16. The method of claim 10, and wherein the binding energy is applied so as to
9 cause the protective coating on at least one of the sheets to become plastic in the
10 preselected binding region.

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12 17. An apparatus for forming a bound document from a plurality of sheets,
13 comprising:

14 an imaging section configured to generate images on sheets of media;

15 a coating section configured to apply a protective coating to an imaged sheet of
16 media;

17 a holding device configured to receive and hold a plurality of sheets of media;

18 and

19 a binding device configured to apply a binding energy to a portion of the
20 protective coating on at least one of a plurality of sheets of media in the holding device
21 and thereby bind the sheets in the holding device to one another.

22
23 18. The apparatus of claim 17, and further comprising:

24 a processor;

25 a sheet binding program configured to be executed by the processor to control
26 the binding device.

1 19. The apparatus of claim 17, and wherein the sheet binding device comprises:

2 a heating element near the holding device, the heating element movable between
3 a first position in which the heating element is separated from the sheets of media and a
4 second position in which the heating element contacts a sheet of media; and

5 a press coupled to the heating element, the press operative for each sheet output
6 to the holding device to press the heating element against a preselected binding region
7 of the sheet.

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9 20. The apparatus of claim 19, and wherein:

10 the sheets of media are each defined by a first edge;

11 the binding device further comprises an anvil operably moveable from a first
12 position in which the anvil is separated from the sheets of media and a second
13 position in which the anvil is urged against the sheets of media proximate the first
14 edge of the sheets of media; and

15 when the heating element is in the second position, it contacts a sheet of media
16 along the first edge of the sheets of media.

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1 21. A method of creating a pamphlet, comprising:
2 providing a sheet of media having a protective coating applied to a least a portion
3 thereof;
4 folding the sheet of media to define first and second portions of a pamphlet, and
5 wherein at least a portion of the protective coating applied to one portion of the pamphlet
6 contacts the other portion of the pamphlet to define a binding region; and
7 applying a binding energy to the binding region to thereby bind the portions of the
8 pamphlet into a sealed pamphlet.

9
10 22. The method of claim 21, and wherein:

11 the sheet of media is defined by a first side, a top edge, a bottom edge, and two
12 opposite side edges, the side edges being essentially perpendicular to the top and
13 bottom edges;

14 the protective coating is applied over the first side;

15 the sheet is folded along a fold line essentially parallel to the top edge; and

16 the binding energy is applied along at least one of the side edges or the top edge.
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1 23. A method of creating a pamphlet, comprising:
2 providing a sheet of media defining a top edge, a first side and a second side, the
3 first side having a protective coating applied thereto;
4 forming first and second folds in the sheet along fold lines essentially parallel to
5 the top edge to produce a tri-fold pamphlet defined by substantially opposite, parallel
6 side edges and an outward surface, and wherein the outward surface comprises the
7 second side of the sheet; and
8 applying a binding energy to a binding region to thereby bind the portions of the
9 pamphlet into a sealed pamphlet, the binding region comprising at least one of the side
10 edges or the top edge of the pamphlet.

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12 24. The method of claim 23, and wherein the binding region comprises the side
13 edges and the top edge of the pamphlet.
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